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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/660,631	09/12/2003	Timothee Pourpoint	SWI-003-USA-P	7072
27955	7590	04/06/2007	EXAMINER	
TOWNSEND & BANTA c/o PORTFOLIO IP PO BOX 52050 MINNEAPOLIS, MN 55402			BEX, PATRICIA K	
			ART UNIT	PAPER NUMBER
			1743	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/06/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/660,631	POURPOINT, TIMOTHEE	
	Examiner	Art Unit	
	P. Kathryn Bex	1743	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 1/16/07.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 9/12/2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>9/12/2003</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because Figures 1-7 are of such poor quality so as to prevent the Examiner from determining the details of the invention. Applicant is advised to employ the services of a competent patent draftsman.
2. The drawings are objected to under 37 CFR 1.83(a) because they fail to show "the inert gas supply means 1" as described in the specification. Reference character 1, appears to be the test stand, not a gas supply means.
3. The drawings are also objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "programmable computer control means electrically connected to the switching means", as recited in claims 4, 11, 14, must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.
4. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for

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consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

5. Applicant is reminded of the proper language and format for an abstract of the disclosure. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided.

6. The disclosure is objected to because of the following informalities: penultimate paragraph at page 4, line 4 of instant specification, recites "...wherein the fuel and atomizer are atomized..." The Office believes this should read "...wherein the fuel and oxidizer are atomized..." Appropriate correction is required.

Claim Objections

7. A claim which depends from a dependent claim should not be separated by any claim which does not also depend from said dependent claim. In this case, independent claim 9 separates claims 10-16, which depend from directly or indirectly from claim 1 or claim 2. Applicant's sequence will not be changed. See MPEP § 608.01(n).

Claim Rejections - 35 USC § 112

8. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

9. Claims 1-2, 4-9, 11-16 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. The "ignition detection means" is critical or essential to the practice of the invention, but not included in the claim(s). Thus, the claim(s) is not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976). The cited purpose of the disclosed invention is to determine the ignition delay characteristics of potential hypergolic fuels (see specification at page 1, 2nd and 4th paragraph.) The preamble of claim 1 recites a hypergolic fuel analytical device, however, the body of the claim contains no means for analyzing ignition delay. Thus, the above referenced claims are broader than the enabling disclosure and a rejection under 35 U.S.C. 112, first paragraph for lack of enablement is appropriate, see MPEP 2164.08.

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claims 1-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In order to conform with current U.S. patent practice, the word "said" should precede all previously recited limitations. For example, "the fuel supply" should be replaced with --said fuel supply--. It is respectfully requested that Applicant thoroughly inspect all claims and make the appropriate corrections.

Claim 1, line 3, recites "said inert gas means". The Office believes this should be changed to --said inert gas supply--, for proper antecedent basis of this limitation in the claim.

Claim 9 recites the limitation "a fast-action valve". The phrase "fast-action" is a relative term which renders the claim indefinite. The phrase "fast-action" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The last paragraph of the specification at page 18 describes a so-called "fast-action valve" as seen in Fig. 7. However, the specification and figure do not illustrate any structural element that differentiates "fast-action" valve apart from the first, second or third valves described. In other words, what makes the valve fast? For the purposes of Examination, the Office makes no distinction between the "fast-action" and the first, second, or third valves.

In addition, claim 9, recites the limitation "said second valve" in line 5 of the claim. There is insufficient antecedent basis for this limitation in the claim. For examination purposes, the Office has interpreted this as the "fast-action valve", however, clarification is required.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

14. Claims 1, 3-9 and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over R. S. Marsden, Jr. (US Patent No. 2,753,934) in view of Pahl (US Patent No. 5,471,833.)

Marsden teaches a hypergolic fuel analytical device for determining ignition delay characteristics of potential hypergolic fuels (see Figs. 1-2.) Specifically, the analytical device of Marsden comprises a compressed inert gas supply means 24, a first valve 26 flowably connected to the inert gas means, and a reservoir 28 flowably connected to the first valve and a second valve 29. The analytical device of Marsden also teaches a gas conduction means 25 connected to the second valve gas; the conduction means splits into a first gas lead 18 and a second gas lead 17 (Fig. 1.) The Marsden device includes

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an oxidizer atomization means 16 connected to the first gas lead and a fuel atomization means 16 connected to the second gas lead. Moreover, in Marsden the device includes an oxidizer supply means 22 flowably connected to the oxidizer atomization means, and a fuel supply means 23 flowably connected to the fuel atomization means. The injection nozzles 16 of Marsden read on the atomization means since both spray the hypergolic fuel into a intersecting spray pattern in the manner disclosed in the instant specification at page 13, first full paragraph.

The method of operating the device, as recited in the wherein clause of claim 1, need not distinguish over the prior art reference since an apparatus claim covers what a device is, not how it operates, see *Ex parte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987). Nevertheless, like the claimed invention, Marsden teaches that fuel is fed from the fuel supply means into the fuel atomization means. Likewise, oxidizer is fed from the oxidizer supply means into the oxidizer atomization means (see, col. 3, line 7+). Next, the first valve of Marsden is opened to fill the reservoir with compressed inert gas. The second valve (quick-acting solenoid valve) is then opened thereby delivering the compressed inert gas from the reservoir to the oxidizer atomization means and the fuel atomization means via the first and second gas leads, concomitantly.

With respect to claim 3, Marsden teaches an ignition detection means (high speed camera is contemplated at col. 1, lines 56-60). Also, figure 2 illustrates a detection system comprising a photocell 38 located to detect the flame of ignition (col. 2, lines 59-62.)

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Regarding claim 5, Marsden recites a containment means 11 having the fuel and oxidizer atomization means disposed therethrough for containment of the hypergolic reaction.

Marsden also teaches a fuel supply control means 21 flowably connected to the fuel supply means and the fuel atomization means. Similarly, Marsden recites a oxidizer supply control means 21 flowably connected to the oxidizer supply means and the oxidizer atomization means, as recited in claim 6.

With respect to claim 8, the device of Marsden teaches a third valve 31 flowably connected to the second valve. The gas conduction means 25 is flowably connected to the third valve opposite the second valve.

Marsden does not specifically recite a switching means conductively connected to the first and second valves, as recited in claim 1. However, the use of a switching means to control the actuation of valves in hypergolic pressurization systems is considered conventional in the art, see Pahl.

Pahl teaches a propellant expulsion system, see for example, the embodiments taught in Figs. 6-8. The system of Fig. 7 includes oxidizer and fuel supply tanks which each include an inert gaseous component 26 therein. The system also includes a switching means (differential pressure switch 96) in electrical communication with the fuel supply valve 92, oxidizer supply valve 94, and a controller 96 (i.e., computer). The controller is considered "programmable" since it can independently control the actuation of the supply valves based on information sent from the switch. That is, the controller of Pahl can maintain the ratio of the hypergolic fluids at a predetermined ratio, thus,

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preprogrammed. The use of a switching means and controller is desirable in order to automatically maintain the fuel and oxidizer mixture ratio at the optimum level (see col. 6, line 38+), which reduces operator error and labor.

Accordingly, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to have included in the system of Marsden, the switching means and controller of Pahl, in order to automatically ensure the fuel and oxidizer mixture ratio is maintained at the optimum level (see col. 6, line 38+).

15. Claims 2 and 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over R. S. Marsden, Jr. (US Patent No. 2,753,934) in view of Pahl (US Patent No. 5,471,833.), as applied to claim 1 above, and in further view of H. M. Fox (US Patent No. 2,995,008.)

The combined system of Marsden and Pahl has summarized, *supra*. Neither reference teaches the use of a fuel atomization adjustment apparatus adjustably connected to the fuel atomization means or an oxidizer atomization adjustment apparatus adjustably connected to the atomization means. Fox does teach an atomization apparatus 96 having adjustable arms 97, 98, 99 which dispense oxidizer or fuel therefrom such that impingement can be aided by bending the nozzles to the desired angle (see col. 5, lines 7-29; Fig. 7).

Accordingly, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to have included in the combined system of Marsden and

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Pahl, the of atomization apparatus 96 having adjustable arms of Fox, in order to aid impingement of the hypergolic fluids (see col. 5, line 22+).

Conclusion


16. No claims allowed.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to P. Kathryn Bex whose telephone number is 571-272-2374. The examiner can normally be reached on Monday thru Thursday, 9 AM to 6 PM, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on 571-272-1267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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